

Appl. No. 09/828,715
Amdt. Dated October 24, 2003
Reply to Final Office Action of July 21, 2003

REMARKS

Favorable reconsideration and allowance of the present application are respectfully requested in view of the foregoing amendments and the following remarks.

Applicants respectfully thank Examiner Rhee for the courtesy she extended in the telephone interview with Attorney Tara Agnew on October 21, 2003, during which the Final Office Action was discussed and possible claim amendments were considered. Specific agreements concerning the claims were not reached during this interview, as Examiner Rhee stated that Applicants' proposed amendments may require a new search and may raise new issues. Thus, Applicants are filing this Amendment in conjunction with a Request for Continued Examination (RCE).

Claims 41-74 are currently pending, including independent claims 41, 57, 63, and 71. In response to the claim objections in the Office Action, Applicants have properly renumbered claims 41-74 in this paper and have amended the dependent claims to reflect the correct numbering.

Independent claim 41, for instance, is directed to a method for joining substrates comprising providing a first substrate and second substrate, each having an upper surface and a lower surface. A continuous thermoplastic tape is positioned adjacent to the first substrate and the second substrate such that the tape is in operative communication with the upper and lower surfaces of the first substrate and with the upper and lower surfaces of the second substrate. In one embodiment, for instance, such a configuration is accomplished by folding the thermoplastic tape into a z-shaped configuration. (See e.g., Appl. Figs. 3-5). A seam is formed by bonding the tape to the upper and lower surfaces of the first substrate and to the upper and lower surfaces of the second substrate. All of the independent claims of the application have been amended to specify that this bonding between the tape and the upper and lower surfaces of the first and second substrates includes at least physical bonding.

In the Final Office Action, independent claims 41, 57, 64, and 71 (along with several of the dependent claims) were rejected under 35 U.S.C. §102(b) as being unpatentable over U.S. Patent No. 4,410,575 to Obayashi, et al. Obayashi, et al. is directed to a lap welding method characterized in that a bonding tape is interposed

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between two end portions of a fabric or fabrics, and a high frequency wave treatment and/or heat treatment is applied to at least the interposed portion while pressing them. (Col. 2, lines 37-52).

Applicants respectfully submit that Obayashi, et al. fails to disclose or suggest various limitations of present independent claims 41, 57, 63, and 71. For instance, independent claims 41, 57, 63, and 71 require that the seam be formed by bonding the tape to the upper and lower surfaces of the first substrate and to the upper and lower surfaces of the second substrate, and this bonding includes at least "physical bonding." However, no such seam formed by physical bonding is present in the disclosure of Obayashi, et al.

For example, as discussed in the recent interview, Fig. 4 of Obayashi, et al. indicates that the "non-melted" side edge portions of the tape 11 form fin-shaped projections 12 and 13 that extend from the "weld." When peeling forces are applied to the welded portion, portions of the forces can be absorbed by deforming the fin-shaped projections 12 and 13, as shown in Figs. 4 and 5. Thereafter, the remaining portions of the peeling forces may be consumed to deform the fin-shaped projections 12 and 13 as shown in Fig. 6 of Obayashi, et al. The disclosure goes on to state that the fin-shaped projections 12 and 13 are "led to [the] outside of the welded portion" in the C' and D' directions, as indicated in Fig. 6. Thus, these fin-shaped projections 12 and 13 protect the "weld" from peeling. (Col 5, lines 18-31). Yet, the fin-shaped projections 12 and 13 are not physically bonded to the fabric substrates 1 and 2 to form the "weld" or seam that bonds substrates 1 and 2 together. In fact, Obayashi, et al. suggests the opposite, noting that the fin-shaped projections 12 and 13 of tape 11 are formed by "non-melted" portions that extend from the "weld." Thus, the projections do not form part of the "weld" or seam, but simply protect the "weld" from peeling.

As noted above, the present claims have been amended to require that the bonding—that forms the seam by bonding the thermoplastic tape to the upper and lower surfaces of the first and second substrates (or fabrics)—includes at least "physical bonding." Such "physical bonding" is described, for example, at pages 3 and 10-11 of Applicants' specification:

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[A] "physical bond" can refer to the physical intermingling of a material within the interstices of a substrate. (Appl. at 3).

Besides forming an adhesive bond with the substrates, however, it has also been discovered that the thermoplastic tape can also form a "physical bond". For example, in one embodiment, after being heated to a certain temperature, at least a portion of the first section 16 and/or the second section 17 of the tape 10 can be softened or melted such that the portion becomes relatively melt-flowable. Moreover, upon being subjected to a certain pressure, the polymer of such melt-flowable portions of the tape 10 can be forced between the interstices of the topography of the substrates 11 and 14. Thereafter, the seam is allowed to cool, whereby the melt-flowable portions solidify within the interstices of the substrates 11 and 14 to form a contiguous "physical bond" therewith. For example, referring to Figs. 6A-6B, certain melt-flowable portions 88 of a polyurethane bilayer tape 10 are shown in physical contact with two substrates 11 and 14. (Appl. at 10-11).

Thus, in the present claims, the physical bonding of the thermoplastic tape to both the upper and lower surfaces of both the first and second substrates (or fabrics) may refer, for example, to the physical intermingling of the thermoplastic material of the tape within the interstices of the substrates or fabrics. And one way in which such physical bonding may be effected includes, for example, heating some portion of the thermoplastic tape to a certain temperature such that portion(s) of the tape are softened or melted (become melt-flowable) and are forced between the interstices located on the substrates.

In stark contrast, the fin-shaped projections 12 and 13 shown, for example, in Figure 6 of Obayashi, et al. are not *physically bonded* to the upper and lower surfaces of the fabrics 1 and 2. Rather, fin-shaped projections 12 and 13 are merely "led to [the] outside of the welded portion" in the C' and D' directions when peeling forces are applied to the fabrics 1 and 2 of Obayashi, et al. in the C and D directions. Although fin-shaped projections 12 and 13 are stated to be "remarkably effective for protecting the weld from peeling," *they are not physically bonded to the upper and lower surfaces of fabrics 1 and 2.*

In the "Response to Arguments" section, the Final Office Action stated that the tap of Obayashi, et al. is bonded to the fabric substrate with a combination of an

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adhesive bond and a physical bond. The Office Action asserted that the interposed middle portion of the tape of Obayashi, et al. is adhesively bonded to the fabric substrate and that the fin-shaped projections 12 and 13 of the tape are physically bonded to the fabric substrate by pressure as a result of the forces that deform projections 12 and 13. This section of the Office Action was discussed during the October 21, 2003 interview conducted by Examiner Rhee and Attorney Agnew. Again, Applicants respectfully submit that the fin-shaped projections 12 and 13 of the tape 11 of Obayashi, et al. are not *physically bonded* to the fabric substrates, as described in detail above. Accordingly, for at least the reasons set forth in this paper, Applicants respectfully submit that independent claims 41, 57, 63, and 71 patentably define over Obayashi, et al.

In addition, the above-cited Obayashi, et al. reference was cited, either alone or in conjunction with U.S. Patent No. 5,003,902 to Benstock, et al., U.S. Patent No. 5,591,521 to Arakawa, et al., or U.S. Patent No. 6,096,420 to Wilhoit, et al. to reject the pending dependent claims. Applicants respectfully submit, however, that at least for the reasons indicated above relating to corresponding independent claims 41, 57, 63, and 71, the present dependent claims patentably define over the reference(s) cited. However, Applicants also note that the patentability of such dependent claims does not necessarily hinge on the patentability of independent claims 41, 57, 63, and 71. In particular, some or all of these claims may possess features that are independently patentable, regardless of the patentability of claims 41, 57, 63, and 71.

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In summary, Applicants respectfully submit that the present claims patentably define over all of the prior art of record for at least the reasons set forth above. As such, it is believed that the present application is in complete condition for allowance and favorable action, therefore, is respectfully requested. Examiner Rhee is invited and encouraged to telephone the undersigned, however, should any issues remain after consideration of this response.

Please charge any additional fees required by this Amendment to Deposit Account No. 04-1403.

Respectfully requested,

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Attachments

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